

In the claims:

1 through 34 (canceled)

35. (new) A method of polishing a wafer, said method comprising the steps of:

providing a polishing pad for use in performing a polishing operation on a surface of the wafer and providing optical means within said polishing pad for sensing an optical characteristic of the surface during the polishing operation;

providing a wafer;

polishing the wafer with the polishing pad; and

sensing an optical characteristic of the surface during the polishing operation.

36. (new) The method of claim 35 wherein the step of providing a polishing pad further comprises providing conductor means within the polishing pad for conducting an electrical signal from said optical means to a central portion of said polishing pad.

37. (new) The method of claim 36 wherein the step of providing a polishing pad further comprises providing a means for transferring the electrical signal from the central portion of the polishing pad to a location remote from the polishing pad.

38. (new) The method of claim 35 wherein:

the step of polishing the wafer comprises rotation of the pad while the pad is in contact with the wafer;

the step of providing a polishing pad further comprises providing an inductive coupling system operable to inductively transfer an electrical signal from the pad

during rotation to a stationary receiver, said inductive coupling system comprising a first transformer winding secured to the pad such that the first transformer winding rotates with the pad, and a second transformer winding within the stationary receiver, and a means to communicate the electrical signal from the optical sensor to the first transformer winding.

39. (new) The method of claim 38 comprising the further step of transferring the electrical signal from the optical sensor to the first transformer winding.

40. (new) The method of claim 39 comprising the further step of transferring the electrical signal from the first transformer winding to a second transformer winding.

41. (new) The method of claim 40 comprising the further step of transferring the electrical signal from the second transformer winding to a signal processing circuit.

42. (new) The method of claim 35 comprising the further step of determining the end point of the polishing process using the optical means for sensing.

43. (new) The method of claim 35 wherein the optical characteristic of the surface of the wafer is the reflectivity of the surface of the wafer and wherein the method comprises the further steps of:

sensing the reflectivity of the surface of the wafer as the wafer is polished;

ending polishing based on the reflectivity of the surface of the wafer.